

b.) Amendment to the Claims

Claims 1-30 (Cancelled).

31. (Currently Amended) A process for producing a sugar chain or complex carbohydrate, which comprises:

selecting, as an enzyme source, ~~the sugar~~ a sugar chain synthesizing agent which comprises, as an active ingredient, a polypeptide ~~among the following (a), (b), (c), (d), (e), (f), (g) and (h):~~

~~(a) a polypeptide comprising the amino acid sequence represented by SEQ ID NO:1;~~

~~(b) a polypeptide comprising an amino acid sequence of positions 41-397 in the amino acid sequence represented by SEQ ID NO:1;~~

~~(c) a polypeptide comprising the amino acid sequence represented by SEQ ID NO:2;~~

~~(d) a polypeptide comprising an amino acid sequence of positions 45-372 in the amino acid sequence represented by SEQ ID NO:2;~~

~~(e) a polypeptide comprising the amino acid sequence represented by SEQ ID NO:3;~~

~~(f) a polypeptide comprising an amino acid sequence of positions 45-372 in the amino acid sequence represented by SEQ ID NO:3;~~

~~(g) a polypeptide comprising the amino acid sequence represented by SEQ ID NO:4, and~~

~~(h) a polypeptide comprising an amino acid sequence of positions 62-378 in the amino acid sequence represented by SEQ ID NO:4,~~

~~or wherein the polypeptide comprises an amino acid sequence in which one or more amino acids are deleted, substituted or added in an amino acid sequence according to any of (a)-(h), and having an activity involved in the synthesis of a poly-N-acetylglucosamine sugar chain; consisting of (a) an amino acid sequence represented by SEQ ID NO:2, (b) an amino acid sequence of positions 45-372 in the amino acid sequence represented by SEQ ID NO:2, or (c) an amino acid sequence having 95% or more homology with the amino acid sequence in the above (a) or (b) and having β 1, 3-N-acetylglucosaminyltransferase activity;~~

allowing

(1) the enzyme source,

(2) an acceptor substrate selected from i) N-acetylglucosamine (~~Galb1-4GlcNAc~~), ~~Galb1-3GlcNAc~~ or lactose (~~Galb1-4Glc~~) (Gal β 1-4GlcNAc), Gal β 1-3GlcNAc or lactose (Gal β 1-4Glc), ii) an oligosaccharide having an N-acetylglucosamine, ~~Galb1-3GlcNAc~~ Gal β 1-3GlcNAc or lactose structure at the non-reducing end, and iii) a complex carbohydrate having an N-acetylglucosamine, ~~Galb1-3GlcNAc~~ Gal β 1-3GlcNAc or lactose structure at the non-reducing terminal, and

(3) uridine-5'-diphosphate N-acetylglucosamine

to be present in an aqueous medium to produce and accumulate a sugar chain or complex

carbohydrate in which N-acetylglucosamine is added to a galactose residue of the acceptor substrate via a ~~b1,3-linkage~~ β 1,3-linkage; and

recovering the sugar chain or complex carbohydrate from the aqueous medium.

32. (Currently Amended) A process for producing a sugar chain or complex carbohydrate to which galactose is added, which comprises:

selecting, as an acceptor substrate, the N-acetylglucosamine-added reaction product obtained by the method according to claim 31;

allowing

(a) the acceptor substrate,

(b) a GlcNAc ~~b1,4-galactosyltransferase~~ β 1,4-galactosyltransferase, and

(c) uridine-5'-diphosphogalactose

~~are allowed~~ to be present in an aqueous medium to produce and accumulate a sugar chain or complex carbohydrate in which galactose is added to the N-acetylglucosamine residue at the non-reducing terminal of the acceptor substrate via a ~~b1,4-linkage~~ β 1,4-linkage; and

recovering the galactose-added sugar chain or complex carbohydrate from the aqueous medium.

33. (Currently Amended) A process for producing a sugar chain or complex carbohydrate to which a poly-N-acetylglucosamine sugar chain is added, which comprises:

selecting, as an enzyme source, ~~the sugar~~ a sugar chain synthesizing agent which comprises, as an active ingredient, a polypeptide among the following (a), (b), (c), (d), (e), (f), (g) and (h):

(a) ~~a polypeptide comprising the amino acid sequence represented by SEQ ID NO:1,~~

(b) ~~a polypeptide comprising an amino acid sequence of positions 41-397 in the amino acid sequence represented by SEQ ID NO:1;~~

(c) ~~a polypeptide comprising the amino acid sequence represented by SEQ ID NO:2,~~

(d) ~~a polypeptide comprising an amino acid sequence of positions 45-372 in the amino acid sequence represented by SEQ ID NO:2;~~

(e) ~~a polypeptide comprising the amino acid sequence represented by SEQ ID NO:3,~~

(f) ~~a polypeptide comprising an amino acid sequence of positions 45-372 in the amino acid sequence represented by SEQ ID NO:3;~~

(g) ~~a polypeptide comprising the amino acid sequence represented by SEQ ID NO:4, and~~

(h) ~~a polypeptide comprising an amino acid sequence of positions 62-378 in the amino acid sequence represented by SEQ ID NO:4;~~

~~or wherein the polypeptide comprises an amino acid sequence in which one or more amino acids are deleted, substituted or added in an amino acid sequence according to~~

~~any of (a)-(h), and having an activity involved in the synthesis of a poly-N-acetylglucosamine sugar chain; consisting of (a) an amino acid sequence represented by SEQ ID NO:2, (b) an amino acid sequence of position 45-372 in the amino acid sequence represented by SEQ ID NO:2, or (c) an amino acid sequence having 95% or more homology with the amino acid sequence in the above (a) or (b) and having β 1, 3-N-acetylglucosaminyltransferase activity;~~

allowing

(1) the enzyme source,
(2) a GlcNAc ~~β 1,4-galactosyltransferase~~ β 1,4-galactosyltransferase,
(3) an acceptor substrate selected from i) N-acetylglucosamine (~~Gal β 1-4GlcNAc~~), ~~Gal β 1-3GlcNAc~~ or lactose (~~Gal β 1-4Glc~~) (Gal β 1-4GlcNAc), Gal β 1-3GlcNAc or lactose (Gal β 1-4Glc), ii) an oligosaccharide having an N-acetylglucosamine, ~~Gal β 1-3GlcNAc~~ Gal β 1-3GlcNAc or a lactose structure at the non-reducing end, iii) a complex carbohydrate having an N-acetylglucosamine, ~~Gal β 1-3GlcNAc~~ Gal β 1-3GlcNAc or a lactose structure at the non-reducing terminal, and iv) the reaction product obtained by the process according to claim 31 or 32,

(4) uridine-5'-diphospho-N-acetylglucosamine, and

(5) uridine-5'-diphosphogalactose

to be present in an aqueous medium to produce and accumulate a sugar chain or complex carbohydrate in which a poly-N-acetylglucosamine sugar chain is added to the non-reducing terminal of the acceptor substrate; and

recovering the poly-N-acetylglucosamine sugar chain-added sugar chain or

complex carbohydrate from the aqueous medium.

Claims 34-37 (Cancelled).

38. (Previously Presented) The process according to claim 31, wherein the complex carbohydrate is a complex carbohydrate selected from a glycoprotein, a glycolipid, a proteoglycan, a glycopeptide, a lipopolysaccharide, a peptidoglycan, and a glycoside in which a sugar chain is bound to a steroid compound.

Claim 39-61 (Cancelled).